Revista da Faculdade de Odontologia de Porto Alegre

The new paradigms in the time of care to patients with head and neck cancer during the Covid-19 pandemic: a literature review

Os novos paradigmas no tempo de atendimento em pacientes com câncer de cabeça e pescoço durante a pandemia Covid-19: revisão de literatura

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ABSTRACT

Introduction: SARS-CoV2 is a worldwide health threat, which has as its main risk group patients with head and neck cancer. In the time being and in the chance of an emerging second wave of infection, a new protocol based on when to treat patients with head and neck cancer must be implemented. **Aim**: Reporting the handling protocols for patients with head and neck cancer, facilitating the clinician's decision in the pandemic scenario. **Materials and Methods:** A bibliographic search was performed in PubMed. A search strategy with descriptors was applied to the database, aiming at reaching scientific articles. The articles reached in such database had their titles and abstracts read in search for the adequacy to the objective proposed. Only scientific articles published between December 1st 2019, and July 10th 2020, were chosen. There was no

restriction either on country or language. **Literature review**: New protocols were created based on the type and stage of cancer, classifying them in order to identify the ideal time to operate safely. Thus, the protocol has levels from initial to advanced, where the initial level comprises benign neoplasms, skin cancers smaller than 2 mm and cases in asymptomatic early stages, and the advanced level comprises malignant, aggressive neoplasms, with painful symptoms and/or that are compromising the other systems and organs. **Conclusion**: It is necessary to follow the detailed care protocol to guide the progress of head and neck cancer services, by operating patients immediately or postponing surgery, depending on the case and seriousness.

Keywords: Coronavirus infections. Head and neck neoplasms. Betacoronavirus.

RESUMO

Introdução: O novo coronavirus SARS-CoV2 é uma ameaça de saúde mundial que tem como um de seus principais grupo de risco os pacientes com câncer de cabeça e pescoço. Na atual conjuntura e em caso de uma segunda onda de infecção, há necessidade de um novo protocolo de quando tratar esses pacientes. **Objetivo**: Relatar os protocolos de manejo e atendimento dos pacientes com câncer de cabeça e pescoço, facilitando a decisão do clínico no cenário de pandemia. **Materiais e Métodos**: Uma busca bibliográfica foi realizada no PubMed. Uma estratégia de busca com descritores foi aplicada, onde os artigos alcançados tiveram seus títulos e resumos lidos em busca da adequação ao objetivo proposto. Foram selecionados artigos científicos publicados entre 1 de dezembro de 2019 e 10 de julho de 2020, sem restrição de país ou idioma. **Revisão da literatura**: Novos protocolos foram criados baseados no tipo e estágio de câncer, classificando-os para saber o momento ideal de intervir com segurança. O protocolo se dá em níveis de inicial ao avançado onde o inicial compreende as neoplasias benignas, ou seja, cânceres de pele menores de 2 mm e casos em estágios iniciais assintomáticos, e o nível avançado compreende neoplasias malignas, agressivas, com sintomatologia dolorosa e/ou que estejam comprometendo os outros sistemas e órgãos.

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Conclusão: Há necessidade de seguir o protocolo de atendimento detalhado que norteie o andamento dos serviços oncológicos de cabeça e pescoço, atendendo os pacientes imediatamente ou adiando o tratamento dependendo do caso e severidade.

Palavras-chave: Infecções por coronavirus. Neoplasias de cabeça e pescoço. Betacoronavirus.

INTRODUCTION

SARS-CoV-2 is an emerging virus that causes coronavirus disease as from 2019 (COVID-19), which on March 11, 2020, it was characterized by World Health Organization (WHO) as a pandemic, provoking a deficit in the health system, and, thus, the reduction of vacancies in the Intensive Care Units (ICUs). Despite all efforts, the disease has caused many deaths directly, due to severe acute respiratory syndrome (SARS), and indirectly due to lack of care and diagnosis of other diseases, such as cancer patients[1-5].

Actually, there is doubt as to whether there is benefit in clinical care during the pandemic, since the response to the virus may interact with the pathophysiology of cancer, or when care is being provided. Head and neck cancer is among the most common types of cancer in Brazil, whose mortality rate is 40% to 50% when untreated, which can increase if there is concomitant contamination by SARS-CoV-2, or due to absence of diagnosis or treatment[6,7].

The interaction between SARS-CoV-2 and head and neck cancers is also given by the cytokines of the Interferon family (IFN). SARS-CoV-2 transcribes viral proteins into the cytosol of the infected cell, which block the factors necessary for the production of IFNs. IFNs, on the other hand, play an active role in combating head and neck cancers, by increasing the antigenicity of tumor cells, through positive regulation of the Major Histocompatibility Complex (MHC), as well as by inhibiting cell proliferation or by inducing cell apoptosis with cancer[8-11].

In view of the current pandemic and the risk of a second wave of infection, a fact that is occurring in countries that have had premature contact with the virus, a new safe care protocol for cancer patients has become necessary, based on

their types, stages and symptomatology, since these patients are in the risk group for the new coronavirus and because hospitals are now potential sites for viral transmission. Thus, the objective of this work is to report the management and care protocols of patients with head and neck cancer, facilitating the dentist's decision in this current pandemic scenario in Brazil or should there be a second wave of infection.

MATERIALS AND METHODS

A bibliographic search was performed at PubMed. In the cited database, a search strategy with descriptors for access to scientific articles was applied: “Coronavirus Infections” [DeCS terms] AND “Head and Neck Neoplasms” [DeCS terms] AND "Betacoronavirus" [DeCS terms]. The articles reached in such database had their titles and abstracts read in search for adaptation to the proposed objective. Only scientific articles published between 1 December, 2019, and 10 July, 2020, were selected. There were no restrictions, either on country or on language. The research aimed at the analysis, comparison and synthesis of data to reach the final objective.

The selection of the literature was made by systematically eliminating articles that did not have an intimate relation to the theme. Finally, 8 articles were included, based on these pre-established criteria, for which we proceeded with the complete analysis and comparison of the data collected for the synthesis of information.

LITERATURE REVIEW

According to the studies[6,7,12], the current scenario of the SARS-CoV-2 pandemic has raised doubts about how to deal with head and neck cancer. These doubts were raised based on different points of perspective. From the point of view of the patient’s, the type and stage of cancer, symptoms, age, systems affected by cancer or other systemic diseases must be taken into account. From the point of view of health professionals, care in the hospital environment and possible exposure of the debilitated patient to the virus should be considered,

assuring if they have adequate personal protective equipment (PPE) to treat the cancer patient and training in the handling of COVID19+ patients. Finally, from the point of view of hospitals, questioning if there are exclusive sectors for cancer patients and/or for COVID19+ patients, making sure if there are ICU vacancies for cancer patients in the pre and postoperative period, and if they have a blood bank with adequate stock, telehealth services for postoperative follow-up. The amount of generation of aerosols in surgical cases, since this is a path of high spread of SARS-CoV-2, should be considered because it promotes the suspension of the virus in the air for up to 3 hours.

Thus, a new analysis needs to be performed, so that the care of patients with head and neck cancer continues safely and effectively. If the lack of diagnosis or delay in the treatment of patients with head and neck cancer can compromise the prognosis and can lead to death. Furthermore, the exposure of the cancer patient in a hospital environment during the pandemic period can accelerate the pathophysiology of the disease, since virus actions in the cell can interfere with the host's defense mechanisms against cancer[9]. Indeed, the non-structural proteins (ORF6 and ORF8) of SARS-CoV-2 when transcribes into the cytoplasm of the infected cell, they inhibit the entry of two transcription factors (TRAF3 and TRAF6) responsible for the transcription of mRNA and increases in interferon levels. IFNs are directly related to a TH1-type immune response that promotes an effective response against viruses (especially the new coronavirus), and also generate an inflammatory response that inhibits tumor growth, with increased TNF expression and decreased growth factors[13,14]. It is important to mention that the cells infected by SARS-CoV-2 are ECA2 + and TMPRSS2 +, which mostly comprise epithelial cells[9]. Also, that virus can enter the organisms through the oral cavity, where a large number of infected epithelial cells and regions of different types of head and neck cancer are observed. Since SARS-CoV-2 infection and IFN production in this region have a dependence on time and viral load, and that the different types of cancer have particularity and severity, it is important to establish a time-based care protocol, which does not compromise the prognosis of both pathologies in comorbidity[13-15].

Based on this, Day et al.[12] classified patients, health professionals, surgery and post-surgery into three levels: low, medium and high risk. The low-risk stage includes patients who underwent self-quarantine for 14 days before the surgical procedure, asymptomatic patients with a negative result for the SARS-CoV-2 test performed 0 to 2 days before the visit. In relation to professionals, asymptomatic professionals with negative tests, routinely performed are classified as low risk. Short-term surgeries without aerosol generating procedures (AGPs), cauterization and suction procedures in upper aerodigestive tract (UADT) surgery are also included at this level. The low-risk post-surgical period must have no AGPs and the need for hospitalization or at least a short duration. The medium risk level does not apply to patients or professionals, being composed of procedures with limited AGP and without UADT, added to post-surgical procedures with frequent aerosol generating procedures and with brief hospital admission. The high level includes patients who cannot perform self-quarantine, with inconclusive symptoms for Covid-19 and without the possibility of testing for SARS-CoV-2. Professionals at this level have Covid-19 symptoms and/or have inadequate PPEs and are not routinely tested. In this stage, surgeries and postoperative periods with intense AGPs, UADT and need for hospitalization are also included.

More broadly, in relation to the patient, Ranasinghe et al.[16,] Topf et al.[17] and Morrison et al.[18] used a classification emphasizing each pathology (table 1). At the initial level, there are benign neoplasms and skin cancer are smaller than 2 centimeters, except for melanoma, which must be monitored and, if possible, have the surgical procedure postponed. Non-melanoma skin cancers larger than 2 centimeters, tumors of low malignancy and lesions requiring cervical lymph node biopsy are classified as intermediate level. The advanced level consists of neoplasms with high malignancy in an advanced stage, melanoma, thyroid cancer, squamous cell carcinoma, direct laryngoscopy, cases associated with human papillomavirus (HPV) and cases that compromise the airways. In this classification, only patients with advanced level demands should undergo surgery immediately, patients who do not fit this classification should have the procedure

discussed with a multidisciplinary team assessing risks. All procedures were performed after preoperative testing and monitoring. The remainder was followed up through telemedicine consultations, aiming at lower risks of patient-professional contamination and vice versa.

Table 1. Classification of head and neck surgery cases by level.

Low Risk Level (postpone surgery 30 to 90 days)	**Intermediate Risk Level** (postpone surgery 30 days)	**High Risk Level** (immediate surgery)	**Individual case analysis** (multidisciplinary decision
Benign neoplasms[16]; Skin cancer smaller than 2cm (except melanoma)[16,17]; Benign salivary lesions[17]; Moderate salivary malignancy[18]; Goiter in the thyroid without respiratory compromise[17].	Nonmelanoma skin cancer larger than 2cm[16]; Low malignancy tumors[16]; Lesions requiring cervical lymph node biopsy[16,17]; Papillary carcinoma of the thyroid of low risk without metastasis[17]; Low-grade salivary carcinoma[17].	Melanoma[16]; Poorly differentiated thyroid cancer[16]; Mucosal squamous cell carcinoma[16]; Anaplastic thyroid carcinoma[17]; Medullary thyroid carcinoma[17]; Follicular lesions on the thyroid (> 4cm)[17]; HPV-positive head and neck squamous cell carcinoma[17]; Parathyroidectomy with renal function declining[17];	Cases that do not fit the other levels mentioned[17].

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Table 1. Classification of head and neck surgery cases by level.

(conclusion)

Low Risk Level (postpone surgery 30 to 90 days)	**Intermediate Risk Level** (postpone surgery 30 days)	**High Risk Level** (immediate surgery)	**Individual case analysis** (multidisciplinary decision
		Skull base malignancy[17]; Salivary cancers (salivary duct carcinoma, high-grade mucoepidermoid carcinoma, adenoid cystic carcinoma, adenocarcinoma and other aggressive high-grade salivary histologies)[16,17]; Skin cancers (Merkel cell carcinoma, advanced high-risk squamous cell carcinoma, basal cell carcinoma in critical area (ie. orbit)[16,17]; Cases that compromise the airways, in advanced or recurrent stages[17].	

All studies show preoperative testing as an unreliable factor, given the evidence of false negatives ones. Another bias is the preoperative quarantine, given that each patient has particularities that influence the level of social isolation possible for their needs. It is also worth mentioning that the protocol must be applied during periods of restricted health care, where the specific region has a high rate of contamination, a reduction in the number of ICU vacancies and a positive population for SARS-CoV2 in an increasing trend.

CONCLUSION

Facing the Covid-19 pandemic, health care protocols need adaptations, especially head and neck cancer ones. Taking into account the results obtained by this work, we conclude that there is a need to follow the detailed care protocol that guides the progress of head and neck cancer services, assisting patients immediately or postponing treatment, depending on the case and severity.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interest.

FINANCIAL SUPORT

None of the authors of this article declares that they have received financial assistance to support this scientific production.

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